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1. An apparatus for wet etching a wafer having front and back surfaces, comprising:

first and second chambers separated one from another by said wafer whereby said back surface is part of said first chamber and said front surface is part of said second chamber;

in said first chamber, contacting said back surface at a first pressure, a first liquid that etches said wafer; and

in said second chamber, a second liquid located at a height, that does not etch said wafer, contacting said front surface at a second pressure that equals said first pressure, whereby leakage of said first liquid to said front surface, through a pin hole in said wafer, cannot occur.

2. The apparatus described in claim 1 wherein said first pressure can be balanced by adjusting said height of the second liquid.

3. The apparatus described in claim 1 wherein said wafer has a diameter between about 10 and 20 cm.

4. The apparatus described in claim 1 wherein said wafer has a thickness between about 0.5 and 0.725 mm.

5. An apparatus for wet etching a silicon wafer having front and back surfaces,

comprising:

first and second chambers that are separated from each other by said silicon wafer whereby said back surface is part of said first chamber and said front surface is part of said second chamber;

seals to prevent liquid from flowing between said chambers;

a first tank containing a solution of potassium hydroxide maintained at a first temperature;

said first tank being connected to said first chamber through a first pumping path and directly connected to said first chamber through an etchant return path;

a second tank containing deionized water maintained at a second temperature;

said second tank being connected to said second chamber through a second pumping path;

said second chamber being directly connected to a water reflow tank which is connected and to said second tank through a water return path;

means for introducing a balance in pressure between liquid contacting said back surface and liquid contacting said front surface; and

in said second chamber, a detector of potassium hydroxide.

6. The apparatus described in claim 5 wherein said means for introducing a difference in pressure between liquid contacting said back surface and liquid contacting said front surface further comprises means to control water height in said water reflow tank relative

to water height in said second chamber.

7. The apparatus described in claim 5 wherein said detector of potassium hydroxide is a pH meter.

8. The apparatus described in claim 5 wherein said first pumping path terminates inside said first chamber at a shower head that emits potassium hydroxide solution in a direction that is parallel to said back surface.

9. The apparatus described in claim 8 wherein said shower head rotates while it emits potassium hydroxide solution into said first chamber, thereby inducing turbulence.

10. The apparatus described in claim 5 wherein said second pumping path terminates inside said second chamber at a shower head that emits deionized water in a direction that is parallel to said front surface.

11. The apparatus described in claim 10 wherein said shower head rotates while it emits deionized water into said second chamber, thereby inducing turbulence.

12. The apparatus described in claim 5 further comprising a section having high flow impedance in said water reflow path to reduce deionized water flow rate.

13. The apparatus described in claim 5 wherein said first temperature is between about 60 and 90 °C.

14. The apparatus described in claim 5 wherein said second temperature is between about 60 and 90 °C.

15. The apparatus described in claim 5 wherein deionized water flows into and out of said first chamber at a flow rate of between about 10 and 100 sccm.

16. A process for wet etching a wafer having front and back surfaces, comprising:

at a first pressure, contacting said back surface with a first liquid that etches said wafer;

at a second pressure that is equal to said first pressure, contacting said front surface with a second liquid that does not etch said wafer, whereby leakage of said first liquid to said front surface does not occur; and

etching said wafer for a period of time without any part of said front surface getting etched.

17. The process described in claim 16 wherein said wafer is a semiconductor.

18. The process described in claim 16 wherein said wafer has a diameter between

about 10 and 20 cm.

19. The process described in claim 16 wherein said wafer has thickness between about 0.5 and 0.725 mm.

20. The process described in claim 16 wherein said first pressure can be balanced by said second pressure.

21. A process for wet etching a silicon wafer having front and back surfaces, comprising:

providing first and second chambers that are separated from each other by said silicon wafer whereby said back surface is part of said first chamber and said front surface is part of said second chamber;

providing seals that prevent liquid from flowing between said chambers;

causing a solution of potassium hydroxide, at a first temperature and pressure, to flow into and out of said first chamber, in a direction parallel to said back surface through a rotating shower head, whereby turbulence is induced in said potassium hydroxide solution thereby removing from said back surface any bubbles that may form there;

causing deionized water, at a second temperature and pressure, to flow into and out of said second chamber in a direction parallel to said front surface through a rotating shower head, whereby turbulence is induced in said deionized water thereby removing

any bubbles that may form on said front surface;

monitoring deionized water in said second chamber for the presence of potassium hydroxide; and

etching said back surface for a period of time that is insufficient for said potassium hydroxide solution to etch all the way through any part of said silicon wafer.

22. The process described in claim 21 wherein said solution of potassium hydroxide has a concentration between about 30% and 40% by weight.

23. The process described in claim 21 wherein said first temperature is between about 60 and 90 °C.

24. The process described in claim 21 wherein said second temperature is between about 60 and 90 °C.

25. The process described in claim 21 wherein the step of monitoring deionized water in said second chamber for the presence of potassium hydroxide further comprises measuring the pH.

26. The process described in claim 25 further comprising terminating etching when said pH exceeds 7.